Thus, in the example, the black character overlaid on a white background was smoothed with darker gray scale and lighter gray scale blending on the horizontal edges. This blending at horizontal edges reduces the flickering that results from the use the television receiver **18** as a display.

The smoothing can be distributed over a number of pixels outwardly from the horizontal edge by varying the number of alpha blending stages. For example, a value of 0.5 may be used for a single pixel row of smoothing while values of 0.75, 0.5 and 0.25 may be used for three pixel rows of smoothing. Additionally, since the alpha values may be stored as part of font or graphics primitives, individual elements may differ in the number of stages and the alpha values in each stage that are desirable for adequate smoothing. For example, as a hypothetical example, the letter "T" may smooth better with 0.5 and 0.25 alpha values and the letter "R" may smooth best with a single alpha value of 0.4. Graphics primitives, such as horizontal lines may have yet another set of alpha values.

Because the alpha blending may be selectively applied to the horizontal portions of text and graphics in one embodiment of the invention, the flicker filtering of the overall display may be reduced as compared to the use of the prior N-tap flicker filters alone. Moreover, on a pixel to pixel comparison, the use of alpha blending may involve less mathematical processing than the N-tap method. Comparatively, per output pixel color component, a 3-tap filter uses 3 multiplications and 2 additions versus the alpha blending method described above on the "T" which may use one multiplication, one addition and one subtract operation. Therefore, embodiments using alpha blending may provide a more intelligent flicker reduction technique.

In some embodiments alpha blending may be used together with flicker filters, for example using N-tap flicker filters. In some embodiments, less computationally complex FIR filters may be used because of the use of alpha blending. In other embodiments, flicker filters may be eliminated.

While the present invention has been described with respect to a limited number of embodiments, those skilled in the art will appreciate numerous modifications and variations therefrom. It is intended that the appended claims cover all such modifications and variations as fall within the true spirit and scope of this present invention.

What is claimed is:

1. A method comprising:

acquiring a graphics primitive to be displayed on a television receiver; and

selectively adjusting the transparency of portions of the primitive relative to a background to reduce flicker when the primitive is displayed on a television receiver by smoothing the horizontal edges of the primitive based on the color of the primitive and the color of the background.

2. The method of claim **1** including acquiring the primitive from a library.

3. The method of claim **1** including forming a bit map of the primitive for overlaying on said background.

4. The method of claim **1** wherein selectively adjusting involves adjusting only a horizontal portion of said primitive.

5. The method of claim **4** further including selecting at least two alpha values for a horizontal portion of said primitive and adjusting the depiction of said primitive in two stages.

6. The method of claim **5**, wherein selectively adjusting includes modifying at least one row of pixels adjacent horizontal portions of the element.

7. The method of claim **1** wherein selectively adjusting includes using alpha blending.

8. The method of claim **7**, wherein selectively adjusting includes subtracting the color value of the primitive from the color value of the background color and multiplying the difference by an alpha value.

9. An article comprising a medium for storing instructions that enable a processor-based system to:

acquire a graphics primitive to be displayed on a television receiver; and

selectively adjust the transparency of the primitive relative to a background to reduce flicker when said primitive is displayed on a television receiver by smoothing the horizontal edges of the primitive based on the color of the primitive and the color of the background.

10. The article of claim **9** further storing instructions that cause a processor-based system to multiply an alpha value times the difference of a color value for the background color and the color value for the graphical primitive and to add the color value of the primitive.

11. The article of claim **10** further storing instructions that cause a processor-based system to acquire a font and an alpha value from a database.

12. The article of claim **9** further storing instructions that cause a processor-based system to alpha blend the horizontal edges of a graphical primitive.

13. The article of claim **12** further storing instructions that cause a processor-based system to alpha blend the edges of a graphical primitive in at least two stages.

14. An apparatus to reduce flicker comprising:

a processor; and

a storage coupled to said processor, said storage storing instructions to enable a graphics primitive to be acquired for display on a television receiver and to selectively adjust the transparency of the primitive relative to the background to reduce flicker by smoothing the horizontal edges of the primitive based on the color of the primitive and the color of the background.

15. The apparatus of claim **14** including a tuner card coupled to said processor.

16. The apparatus of claim **15** including a television receiver coupled to said processor.

17. The apparatus of claim **16** wherein said storage includes a font database associated with alpha values that reduce flicker.

18. The apparatus of claim **17** wherein said storage includes instructions to cause an alpha value to be multiplied by the difference of the color values of a background and primitive and to add the color value of the primitive.

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